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March 19, 2007

The Honorable John D. Dingell  
Chairman, House Committee on Energy and Commerce

The Honorable Rick Boucher  
Chairman, Subcommittee on Energy and Air Quality

RE: National Hydropower Association Recommendations for Federal Climate Change  
Legislation (Submitted via e-mail)

On behalf of the National Hydropower Association (NHA), thank you for requesting comments on the important greenhouse gas (GHG) policy issues raised in your February 27, 2007 letter to the energy industry and community. We are pleased to submit the following for consideration by the House Committee on Energy and Commerce and the Subcommittee on Energy and Air Quality. We look forward to working with you and other members of Congress on a cooperative review of both the benefits and impacts of proposed climate change control proposals on the hydropower sector.

### **Introduction**

NHA is the only national trade association committed exclusively to representing the hydropower industry. Our 140-plus members represent a diverse mix of privately-owned and publicly-owned electric utilities, independent power producers, equipment suppliers, manufacturers and energy experts. NHA represents over 60 percent of Federal Energy Regulatory Commission (FERC)-licensed hydropower capacity, and has been based in Washington, D.C. since 1983. NHA's mission is to promote the nation's largest renewable energy resource, and to ensure that it continues to play a strong role in the nation's energy and environmental strategies.

### **NHA's Response on Federal Climate Change Policy**

The national hydropower industry is undertaking a comprehensive examination of the climate change issue. We are currently reviewing policies to address it and taking steps to better understand both the effects of climate change, and proposals to control the gases causing climate change, on the hydropower industry and its resources. Today, we are prepared to offer the following issues for consideration as the debate proceeds.

Key Policy Issue #1 -- Hydropower's current and future potential as the nation's most robust, climate-friendly renewable energy resource.

Crucial to this debate is the need for policymakers to work together to examine and embrace proposals that will promote the expanded use and development of resources capable of meeting the dual goals of controlling GHG emissions and maintaining a reliable and affordable electricity supply system. Hydropower and new water power technologies can provide significant benefits to these national energy and environmental goals.

Currently, hydropower provides sizeable benefits. As the leading renewable energy resource in the country, it accounts for 7% of all of the nation's electricity in terms of actual generation and approximately 9% in terms of actual capacity. Overall, hydropower accounts for 77% of actual renewable electricity generation and 83% of the nation's renewable energy capacity.

As an important source of electric power, hydropower offers advantages over other generation options. It provides significant generation, peaking capacity, and ancillary services to bolster the reliability and resilience of the nation's transmission system. This includes frequency control, regulation, load following, spinning reserve and supplemental reserve. Importantly, hydroelectric units are able to start, stop, and change output quickly with relatively small effort and cost. Non-power benefits include water supply, flood control, irrigation, navigation and recreation.

Hydropower's potential contribution is notable. New reports are showing great potential from efficiency improvements and capacity upgrades at existing projects and significant new capacity gains from emerging waterpower technologies providing energy from ocean, tidal, and instream projects. According to a new Electric Power Research Institute (EPRI) report, **the potential for increases in capacity, mostly without the need to build dams, is conservatively estimated as 23,000 MW by 2025, with an overall estimate of 85,000 to 95,000 MWs with appropriate public policy support.** This includes:

- 2,700 MW of new small and low-head conventional hydropower (<30 MW installed capacity);
- 2,300 MW capacity gains at existing conventional hydropower;
- 5,000 MW of new conventional hydropower at existing non-powered dams;
- 10,000 MW from ocean wave energy technologies; and
- 3,000 MW from hydrokinetic technologies (river-based).

Realization of this significant capacity gain will require continued and increased RD&D support. In addition, other economic incentives and planning, testing and impact evaluation assistance will be required. As stipulated by EPOA 2005, Title IX, Sec. 931, the Secretary of Energy is required to:

*Conduct a program of research, development, demonstration and commercial application for cost competitive technologies that enable the development of new and incremental hydropower capacity, adding diversity of the energy supply of the United States, including: (i) Fish-*

*friendly large turbines. (ii) Advanced technologies to enhance environmental performance and yield greater energy efficiencies. (...) The Secretary shall conduct research, development, demonstration, and commercial application programs for – (i) ocean energy, including wave energy (...) and (iv) kinetic hydro turbines.*

Key Policy Issue #2 -- How a national greenhouse gas cap-and-trade program will address emissions from energy systems with low to non-emitting energy resources.

There is a range of point-of-regulation approaches that could have vastly different impacts on systems with sizeable hydropower assets. An upstream approach would regulate emissions on the fuel producer. Another approach would require downstream energy consumers to submit allowances. Finally, the point of regulation could be at some intermediate position in the supply chain, such as at electric generation facilities.

In these approaches, and in the equally important area of how the burden of reducing emissions should be distributed, policymakers must recognize that energy systems with sizeable hydropower assets produce far less carbon per unit of electricity produced than other systems. Therefore, electric utilities and systems that rely on climate-friendly hydropower to serve a portion of their load should not be required to reduce their greenhouse gas emissions by the same percentage as more carbon-intensive systems; otherwise, they would bear an unfair burden disproportionate to their contribution to the problem.

Key Policy Issue #3 -- How final GHG control legislation will impact the hydrologic balance of the watersheds on which hydropower depends.

The potential effects of climate change on regional resources are a concern. Washington State recently released a report discussing the effects of climate change on the Puget Sound region. The projected changes include warmer air and water temperatures, alteration of stream flows, and increased flooding.<sup>1</sup> The potential effects of these conditions on stream flow and snow pack are of growing interest to utilities and local governments in western Washington State where hydropower accounts for 80 percent of the electricity generated and where spring snowmelt is critical for reservoir recharge. Warmer temperatures could affect hydropower generation in mountainous watersheds by altering snow pack amounts and distribution and changing seasonal flow. There are effects on smaller watersheds that are of concern from a water supply and power generation standpoint. As policymakers deliberate commonly understood impacts on climate change on air quality and natural resources, it is becoming increasingly apparent that the effect of climate change on the hydrology of the nation's water basins and reservoirs will need examination.

### **Recommendations**

As Congress proceeds with its exploration of one of the most complex environmental and energy issues of our time, it will be imperative for the hydropower industry – developers, electric utilities, cities and consumers alike – to enlighten the debate about the effects of climate change

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<sup>1</sup> Snover, A.K., P.W. Mote, L. Whitely Binder, A.F. Hamlet, and N.J. Mantua, *Uncertain Future: Climate Change and its Effects on the Puget Sound*, University of Washington, Seattle, 2005

on the industry's fuel source – water; as well as the often unseen benefits and potential of the country's most robust renewable energy resource. Congress needs to work with the hydropower industry to have a better understanding of how climate change will impact hydrology – affecting flows and the availability of water for both power and water supply, and the integral relationship such changes will have on the power source. Coordination between the federal and the private hydropower system to develop a better understanding of these effects, to improve planning, and to develop and use appropriate technological advances, will be key in responding to the challenge.

Hydropower's current benefits to consumers in meeting energy and water use needs are well documented. Less known is the amount of low-emissions energy that can be derived from both existing hydropower projects and new water power technologies. Hydropower – both conventional and non-conventional technologies – should be fully deployed to further the renewable and clean energy response to the impacts of climate change.

Any legislative regime that addresses climate change should recognize and promote the clean energy attributes of hydropower. Specific legislative provisions should:

- Credit hydropower's current contribution to the energy mix.
- Remove barriers to increased growth opportunities.
- Create market signals for additional investments in hydropower.
- Direct federal resources to facilitate additional clean electricity production from hydropower.
- Expand and extend new renewable energy tax incentives and clean energy bond programs.

### **Conclusion**

Thank you for the opportunity to provide input toward the consideration of climate change policy by the Committee on Energy and Commerce. NHA agrees that it is critical for the hydropower industry – from electric utilities, developers and consumers – to work cooperatively with policymakers to fully understand how climate change control legislation will achieve the dual goals of controlling GHG emissions and maintaining a reliable and affordable electricity supply system.

If you have any questions or comments, please feel free to contact me or Jeffrey A. Leahey, Senior Manager of Government and Legal Affairs at (202) 682-1700.

Thank you.

Sincerely,



Linda Church Ciocci  
Executive Director  
National Hydropower Association